

HARTZELL PROPELLER INC.

One Propeller Place
Piqua, Ohio 45356-2634 U.S.A.

HARTZELL

July 3, 2003

Docket Management System
U.S. Department of Transportation
Room Plaza 401
400 Seventh Street, SW
Washington, DC 20590-0001

Docket Number FAA-2003-15279 - 3

UNITED STATES DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D. C. 20535

Subject: Docket No. FAA-2003-15279, Comments on the Harmonization of Noise Certification Standards for Propeller-Driven Small Airplanes

Hartzell Propeller would like to submit comments on the NPRM that proposes to harmonize the noise certification standards for propeller-driven small airplanes. Our company has been in the business of designing and manufacturing aircraft propellers for the past 86 years, and in that time we have supplied propellers to nearly all of the major manufacturers of personal, corporate and regional airline aircraft around the world. A part of our business also involves supplying propellers to aircraft modification companies who upgrade older aircraft with new propellers, often in conjunction with improved engine installations.

Hartzell also holds 50 Supplemental Type Certificates (STCs) for installation of improved propellers on small airplanes, from which over 10,000 kits have been installed. In total, we have approximately 2,000 different aircraft/engine/propeller applications and we are currently involved with approximately 80 propeller installation programs.

Based on the above industry involvement and experience, we disagree with a number of the points made in the NRPM and therefore do not favor adoption of the proposed rule. Below are our comments grouped by NPRM section:

NPRM Summary Section

According to the NPRM *“The revisions to these to items would apply only to a small number of older-technology airplanes.”* Since the majority of the world’s small aircraft are based in the United States (some 150,000+) and all of these aircraft are potential propeller and engine retrofit candidates, we disagree with this statement. We have worked on a number of certification projects in recent years where a maximum-continuous rating was utilized to allow increased performance and safety to be realized while still meeting the current noise regulations. Requiring noise testing to be done at maximum power would force some future installations to reduce the maximum power/RPM and initial (first segment) climb performance of the aircraft. This would clearly be detrimental to safety for many of the lower-powered small aircraft that have marginal climb performance.

NPRM Background Section

The NPRM describes the adoption of 14CFR Part 36, Appendix G, amendment 22 on October 13, 1999, but does not describe any recent changes to the ICAO Annex 16 Chapter 10. We

have recently been involved in a certification project for a small airplane of European design, manufacture, and certification that had noise data JAA-approved with a maximum-continuous power/RPM rating as recently as June, 2000. Based on the information contained in the NPRM and our recent experience, it does not appear that the European authorities were harmonized with their own regulations in this case.

Section G36.111, Flight Procedures

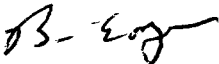
The end of the second paragraph of this section says *"The noise increase caused by the engine at takeoff power will be cancelled or reduced by the height gained over the microphone since the sound propagation distance from the airplane to the microphone increases as the airplane flies higher. Hence, the sound reaches the microphone at a lower level"*.

In our experience the preceding statement has never been true. The noise increase with increased power/RPM far outweighs the slight noise reduction due to increased climb performance. As one example, test data from Hartzell STC SA10135SC for a Beech Bonanza showed that a small (50 RPM) increase raised the sound level nearly 2 dB(A). On another example, Hartzell STC SA01111CH for a Cessna 170, the maximum continuous RPM was reduced from 2700 to 2550 RPM to achieve the desired sound reduction. We believe that the NPRM actually contradicts itself in this regard, i.e. if the airplane would be quieter at maximum power, why would anyone specify and approve a (lower) maximum-continuous power rating for noise purposes?

Earlier in the same paragraph the NPRM says *"The FAA conducted an informal survey to determine whether any recent noise certification tests have been conducted on airplanes with time-limited engines. The FAA found no noise measurements of old-technology engines that may be affected by this proposal"*. We have been involved in a number of programs where noise testing was performed at maximum-continuous power when the engine Type Certificate does not specify a reduced maximum-continuous rating. In two of the three examples noted above the engine was an "old technology" Lycoming O-360 engine (originally certificated in 1955). In the same two projects maximum-continuous ratings were defined and certified by the airplane Type Certificate or Supplemental Type Certificate holder, and noise testing was performed within the last four years. Therefore we do not believe the above NPRM statement is correct.

In summary, we believe that the proposed harmonization effort is based on faulty information and would penalize the performance and safety of the majority of the worldwide small airplane fleet for no benefit. Harmonization is also unnecessary: nothing currently prohibits manufacturers from designing new aircraft to have the same maximum/maximum-continuous power rating to ease the international certification process if they so choose.

Sincerely,



Brian E. Meyer
Manager, Aircraft Applications Engineering
Hartzell Propeller Inc